



LETTER TO THE GOVERNORS AND COUNCIL

OF

St. Thomas's Hospital

ON THE QUESTION OF SITE.



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*To the Governors and Council of St. Thomas's
Hospital.*

GENTLEMEN,

Knowing that your attention has been drawn to a short address which I had the honour to deliver before the Association for the Promotion of Social Science, "On the Proper Sites for our Metropolitan Hospitals," and feeling that the views therein advocated were necessarily but imperfectly represented in the time allowed for its delivery by the regulations of the Association, namely, twenty minutes, I beg to lay before you further details, of the mode in which I think the scheme I then proposed might be carried out, and to explain more clearly the reasons which have induced many besides myself to recommend the more or less universal adoption of some such plan, in lieu of the Hospital system at present existing in London. I should have preferred leaving it to others more competent than myself, to prove to you the important results which your decision on the question now pending, concerning the site of St. Thomas's Hospital, must have on the future welfare of the sick poor of all our large cities; but failing this, I feel assured that I can do the subject more justice than I was able to in the paper which fell accidentally under the notice of one of your number, and which was intended only for general interest, without any reference whatever to St. Thomas's Hospital, of which I knew nothing except by general report. Above all, I had hoped, that views, which have received the approbation of many of the leading Hospital Physicians and Surgeons both of this country and the Continent, would have found able advocates among the distinguished members of your own Medical Staff. It seems, however, from a statement of their opinions lately made public by them, that they all recommend the reconstruction of the Hospital "in the very heart of London," an opinion so diametrically opposed to that I arrived at in the paper which has been recently circulated among you, that I feel I am compelled to defend my reasons for urging so different a use to be made of the present rare opportunity of choosing a better site for your great and wealthy institution.

I am aware that in thus addressing you directly, I shall lay myself open to misconstruction by those who do not know my motives, and much obloquy from the leading journalists and many other influential persons who have taken the other side of the question with a strong party bias, and an exhibition of temper that is quite out of place in a discussion where the object professedly aimed at on both sides is purely how to minister most efficiently to the welfare of the sick poor; but although I know I can gain no personal advantage in return for that risk, or for the time, labour, and expense entailed—the amount of the two first, expended in the collection of statistics, &c., being of no slight importance to one whose time is fully taken up by professional work—I feel that I should fail in an important duty, if, having once raised my voice in this matter, I were now to draw back.

I take it for granted that it is the sincere desire of every individual Governor who may peruse these lines, to advance, so far as in him lies, the primary object of the charity, namely, the healing of the sick. I propose therefore—

First. To show that the air of London must necessarily have a pernicious effect on sick and wounded persons.

Secondly. I will prove by statistics that such an effect is produced, and that a large proportion of the deaths which occur in the London hospitals might be prevented by purer air.

Thirdly. I will explain a perfectly practicable mode of gaining that advantage without any counterbalancing loss to the patients.

Lastly. I will consider seriatim the arguments which have been or might be used against such a plan as that proposed.

I. *The advantages of country air in the treatment of the sick and wounded.* The constitution of the atmosphere is everywhere affected by the nature of that part of the earth's surface over which it travels. From the ocean it takes up water, from the forest oxygen, from the marsh ague-poison. So, where large numbers of human beings live in close proximity to each other, the air which surrounds them is found to be very different from what it is at long distances from human habitations; that this is so, is easily perceptible by the unaided senses. No one will deny this who has left the neighbourhood of large cities, to revel in the pure freshness of the moor or the hill-side. The difference has, however, been more precisely demonstrated by science; the microscope detects

thousands of kinds of minute particles of solid matter floating constantly in the air which we breathe, while chemistry shows the presence of numerous gases foreign to the normal constituents of pure atmosphere, an increase in the proper proportions of some of these constituents, and a diminution, or even total disappearance of others. It would not aid my present purpose for me to touch further on these differences, except so far as they affect life. Now those additions which are of most importance in this way are of an organic character, that is, having some time or other formed part of a living being; they are more compound in their nature, and therefore more capable of being broken up than other forms of matter, and they are mostly undergoing various grades of this breaking up or decomposition, less rapid and active, but essentially of the same nature as that with which we are familiar in the burning of a candle. The animal fat, whether ignited in the wick of the candle, or left to rot in contact with moisture, will ultimately arrive at the same end. In both cases its constituent carbon and hydrogen will at last separate from each other, to combine with oxygen to form carbonic acid and water, though there may be an infinite number of intermediate stages before the final result is arrived at by the process of decay.

A similar change ensues in every kind of organic matter placed in favourable circumstances. The three, four, or more component parts are separated from each other to form simpler forms of matter of one or two elements only, and this change is effected chiefly by the agency of oxygen. This action or *oxidation* is accompanied by the development of heat and other chemical phenomena, just as is the case with more active combustion; in fact, the one can easily pass into the other, as every one knows is apt to occur in the case of rotting hay.

One of the points in which decay corresponds with other forms of combustion is its tendency to extend itself from one mass of matter to others capable of undergoing the same change. This is an exemplification of the principles laid down by Laplace and Berthollet, and accepted by Liebig, namely—"that an atom or molecule put in motion by any power whatever, may communicate its own motion to another atom in contact with it." "This," says Liebig, "is a dynamical law of the most general application, manifested everywhere, when the resistance or force opposing the motion, such as *the vital principle*, the force of affinity, &c., is not sufficiently powerful to resist the motion imparted." (The italics are my own.) In other words, matter undergoing decomposition will set up

or expedite similar decomposition in any materials susceptible of the change with which it may come in contact, especially when the natural resistance, such as is offered by a healthy vitality, for instance, is lessened.

Practical illustrations of the application of this principle to the animal frame may be easily adduced. Take, for instance, a piece of dead flesh, in contact with air of a certain temperature and moisture, it must eventually become decomposed, but that this decomposition is hastened by the minute particles of organic matter suspended in the air, is shown by the fact mentioned by Schröder, that if the air to which the flesh is exposed be made to pass first through finely carded cotton, decomposition will be considerably retarded. This suspended matter has a like effect on such parts of the body as are exposed to their influence, when the vital power of these parts is lowered by disease. In every form of malnutrition, whether this be from starvation, or injury to the spine, or the so-called putrid fevers, all the tissues of the body are particularly prone to decomposition, especially in parts the nutrition of which is still further interfered with by pressure. To protect these parts by any innocuous air-tight covering, such as soap plaster or collodion, is the most efficient means of preventing the loss of their vitality.

The best exemplification of the pathological effect of impure air is its influence on open wounds, and it is on that account that I shall hereafter refer chiefly to those surgical cases in which these occur as my chief illustrations of the ill effects of such impurity. When the skin is subjected to a sufficient amount of irritation, it pours out a fluid which raises the superjacent cuticle, and constitutes a blister. If the cuticle be allowed to remain, the irritation will gradually subside, the fluid will be re-absorbed, and a new cuticle will be formed, without the occurrence of any other change. If the protecting film of raised cuticle be taken away, however, while the skin is still suffering from the recent irritation, and therefore possessed of less vital power, it will throw off particles incapable of further use in the system, and constituting purulent discharge. In children and older persons weakened by disease or injury, the amount of matter thus deprived of vitality will be greater, and a larger or smaller portion of texture will die and have to be thrown off in the form of slough; and these sloughing sores are the not uncommon unintentional results of simple medicinal blisters applied to weakly persons in crowded cities. In a purer atmosphere I have never known this to be the case. That which affects

the unprotected skin will also affect the raw surface of an open wound. Surgeons know well the baneful influence thus exercised by ordinary air. The chances of life are diminished a hundredfold in the case of fracture of the larger bones, by the simple fact of the torn parts communicating with the external air. To prevent this in the case of ordinary compound fractures, some such plan as that of Sir Astley Cooper is adopted. He directed the wound, when small, to be closed with a piece of lint which was to be soaked in blood, and allowed to form a kind of scab over the part. The degree of ill effect produced will depend on the amount of impurity to which the wound is exposed, and therefore, the quality of the atmosphere being the same, on the extent of its raw surface. It is on this account only, after the system has recovered from the shock of the operation, that amputations are dangerous in proportion as they approach the trunk.

Just as in the case of the raw surface of blistered skin instanced above, so may the repair of clean cut wounds be preceded by the effusion of lymph only, or by purulent discharge or sloughing. These various degrees of alterations in the natural processes of nutrition pass by the name of inflammation—a word framed to express the increase of temperature with which this alteration is generally accompanied, but understood by surgeons of the present day to express those conditions of a living texture which cause it to separate from itself lymph, purulent matter, or slough. It is a condition which constitutes or complicates nine-tenths of the affections we have to treat, and that by which it is influenced cannot fail to influence them. The most able and complete treatise with which I am acquainted, on the subject of inflammation, is that of your learned and distinguished Professor of Pathology. In it he remarks that “The power which produces the phenomena of inflammation is the power which produces the ordinary phenomena of textural life, and fully to explain inflammation would be to explain life.”

Suffice it to say, however, that on the degree, quality, and progress of this process depend the well or ill-doing of all injuries and most diseases. Its character will depend on the natural strength of the patient, and the circumstances in which he is placed at the time. Of these circumstances the most important is the proper nutrition of the general system. Again, quoting Mr. Simon, “influences which are of a devitalizing kind are also predisponent to inflammation.” This nutrition comprises an adequate supply of nourishing food; but the form of nutrient material, the loss of which is most

quickly felt by the sick or wounded man, is that required for the due aeration of the blood; and this does not consist merely in a sufficient supply of oxygen, but a sufficient degree of purity in the air inspired, to allow of the diffusion into it of gases which have fulfilled their purpose in the economy, and the retention of which lowers the vitality of every part of the body, and increases the tendency to low or disorganizing forms of inflammation.

Most probably in this way are to be explained occurrences similar to the following, mentioned by Mr. Campbell De Morgan, Surgeon to the Middlesex Hospital. In one of the surgical wards he noticed that, notwithstanding every kind of precaution, erysipelas was constantly attacking one or two of the patients. By and by it struck him that these attacks were mostly confined to, or began with, the successive occupants of two particular beds; and, on recollecting that this had really been constantly the case, he looked for some cause affecting that particular part of the ward. Between the beds was a window, immediately under which, in the yard below, there was an ordinary dustbin in a very unclean state. The dustbin was cleaned out, and, I think, closed, and no more erysipelas originated spontaneously in these beds for some years, when another outbreak of the disease occurred, in which the patients in the same beds were again the first and worst sufferers. On examination, it was found that in the meantime the dustbin had again come into its original use, and again contained refuse, the emanations from which had developed the erysipelas. Steps having been taken of the same kind as before, they were immediately followed by the same decided and lasting benefit. The results of these two unintentional experiments, would be of themselves tolerably conclusive evidence, of the influence of air containing putrescent matter in the production of Erysipelas; and Erysipelas is the type of almost all the secondary affections which are so fatal after operations. Whether these are called diffuse inflammation of the cellular tissue, low inflammation of the veins of the part, inflammation of the lymphatics of the part, unhealthy supuration, purulent absorption, Pyæmia, sloughing, Phagedæna or Hospital Gangrene, they are all universally admitted to be produced in the same way, and to require the same treatment as true Erysipelas. In fact, all of them are often classed together in ordinary medical diction as "the Low Inflammations," and few names could better express the character they all have in common. They are varieties of that kind of inflammation in which there is less tendency to the effusion of

lymph than there is to decomposition of the textures; and this tendency is specially predisposed to, excited, and promoted by organic matters in the act of decomposition being brought into contact with the open surface of the wound, or so surrounding the patient in the air which he breathes, as to impede the proper elimination from the blood, by the skin and lungs, of those effete matters which should constantly be discharged from the system as soon as formed, and which, being of the very same nature as the impurities in the air, produce, by their retention, a similar effect on the system generally to that which they produce on the surface of the wound.

I prefer again quoting your own officer on this point: "it needs not to be argued that the due defecation of the blood is as important to it as its food; but perhaps the student may be properly asked to reflect on the immense amount and complexity of those molecular changes which silently and almost secretly minister to this process; how the material of every acting organ, by waste as also by renewal; how products which eventually appear more or less altered and oxidized in the breath, and sweat, and urine, and fæces, are uninterruptedly being thus disengaged, and as it were moulded from the living textures; how while the body grows its healthy growth, these declining products are incessantly merging themselves in the blood which washes past their source—merging themselves in it, not as urea and carbonic acid and excretin, but as unpermanent forms infinitely more complex. Reflecting on those many runlets of textural drainage, each with its own protean constitution of effete devitalized material, he will easily conceive how important a malcondition it may be for any of them to remain stagnant amid the living substance, instead of continuing its progress to excretion; and he will be prepared to follow with interest the analysis of cases in which apparently this imperfect defecation of tissue constitutes the local predisposition to particular forms of inflammation."

That those inflammations which attack internal organs only, and therefore come as medical cases under the care of the physicians, partake of similar tendencies to those of which we can daily watch the progress on the surface of the body, is undoubted and undeniable, though the different characters which inflammatory action may take in those parts are of course not observable or even recognisable, except by the general condition of the patient. Thus cases of inflammation of the lungs, head, and bowels, are as easily divisible into high and low kinds, as that which may supervene on an injury; and in the

low kinds of internal inflammation as much as in those of the surface, the most prompt and efficient means of supporting vital action, are now everywhere recognised to be the patient's one and only chance.

If the reader still be inclined to think that the influence exercised by London air on the well doing of our hospital patient is after all but slight, let him revert to Mr. De Morgan's conclusive proof of what one solitary dustbin can do in this way, and then consider what we have to expect from the innumerable sources of impurity with which London abounds. Take one kind alone—the sewers. These, because they are covered up, are commonly considered quite harmless, especially in comparison with open drains. What is the fact? The organic matter always passing along the 1334 miles of our metropolitan sewers is rapidly decomposed by the water in which it floats into far more noxious gases than would be formed were these matters freely exposed to the air. “During the true putrefactive process, that is, the decomposition of animal substances with the exclusion of oxygen, gases are evolved which exercise a deleterious influence and speedily put a limit to the life of even the microscopic animalculæ. The excrements of man, while putrefying, never exhibit the presence of microscopic animalculæ, whilst we find abundance of them in the excrements when in a state of decay. A wise arrangement of nature has assigned to the infusoria the dead bodies of higher orders of beings for their nourishment, and has in the animalculæ created a means of limiting to the shortest possible period the deleterious influence which the products of dissolution and decay, exercise upon the life of the higher classes of animals.” (Liebig.) The sole advantage of our present system of drainage, is that of conveying the sewage as rapidly as possible from its entrance into the sewer, to its exit; there being, however, a constant supply of fresh materials, the sewers always contain along the whole of their course large quantities of fæcal matters in various stages of decomposition according to the distance they have traversed, and a large proportion is converted into gas long before the final outfall can be reached. What then becomes of the vast volumes of noxious gases thus constantly being generated along the whole length of our sewers and their ramifications?

Their tendency can certainly not be downward with the liquid and semi-solid sewage; on the same principle as the draught of a chimney, their course must be in the opposite direction, and the whole must be eventually evolved either into the houses themselves or into the streets. Where the former is

the case from defective trapping of the house drains a marked effect on the health of the inmates is the necessary result. A graphic illustration of this was afforded in the outbreak of typhoid fever in Windsor, in the year 1858. It was there noticed that the disease was almost confined to the richer and apparently cleaner part of the town, scarcely a case occurring in the poorest and most neglected part. In those districts to which the epidemic was almost exclusively confined, the communications with the main drains were directly from the interior of the houses, while in the poorer district, which escaped, the private drains were almost all outside the houses. In the affected districts the drain gases had risen into the houses from defective trapping.

Here then was an experiment of the effect on human beings of a somewhat unusual proportion of sewer gases in the respired air. It exactly corresponds with some performed by Dr. T. Herbert on the lower animals, and published by him in the "Sanitary Review," in the April of the same year. In these experiments he showed the various degrees of injurious effect which sewer air exerts on the animal frame, from almost immediate death to long continued illness, according to the proportion of decomposition in the air respired and the length of the exposure.

In London unfortunately we have not got rid of the emanations from our decomposing excreta when these have passed out of our sewers.

"The river Thames next necessarily exercises a most baneful influence upon the salubrity of those towns east of Brentford through which it flows in its course to the sea. The whole river is apparently one large evaporating surface, which exhales day and night incessant and vast volumes of vapour, discharged with the mephitic effluvia and impurities arising from animal and vegetable matter in all stages of decomposition, and of which the atmosphere is the ready recipient. According to Mr. Glaisher's calculation of the annual evaporation of water in our climate, viz., 30 inches in depth, there must be *daily* raised 4,170,000 gallons, or 18,000 tons of water in the form of vapour from the 2,245 acres of the polluted Thames at London. During calm, clear weather these emanations, consisting of sulphuretted and carburetted hydrogen gases, of nitrogen and carbonic acid, free ammonia, and other vapours, ascend high into the atmosphere, where they become generally diffused, but in their descent on cooling they spread broad-cast the seeds of disease and death." (Pickford.)

Besides the emanations from human excrements, those from the dung of animals add considerably to the impurity of town air. In London there are always tens of thousands of horses and cows constantly contributing to this effect. The emanations from cow-houses are especially noxious. I have several times traced the outbreak of continued fever and diphtheria to this source. The putridity of the materials used in certain manufactures is another terrible item in the list. The tanning, soap-boiling, and bone-burning establishments on the south side of the Thames, must cause in this way a great deal of the excessive mortality of that part of the metropolis.

I will here stop in my enumeration of the many causes of the impurity of London air, to consider how it is that with such an amount of putridity constantly poured into it, it can remain as tolerable as it is, and not infect the whole surrounding country with the poison which it generates. Such undoubtedly would be the case did not nature provide means of diminishing the evil.

The winds which sweep our streets of course clear them for a time of the less pure air which they find there, and even independently of this mechanical scattering of noxious gases, they have a natural tendency to rise into the surrounding air by what is known as the law of diffusion; but even though the putrid gases and molecules were scattered over a very large tract of country, they would still take a long time to decompose, were it not for the constant development in the atmosphere of a peculiar form of oxygen, which exerts a most powerful and rapid oxidizing power on these matters, by which they are rendered completely innocuous, and ultimately reduced to their original simple state in which they were before forming part of a living being. This is called ozone, and it is but a few years since its existence was first discovered by Schönbein, who has found that air containing but $\frac{1}{3,240,000}$ of ozone is capable of disinfecting its own volume of air charged with the miasmata given off in 1 minute from 4oz. of flesh in a high state of decomposition. How is it then that this effect is not produced in London? So it no doubt is, so far as it can be by the amount of the agent naturally developed; but "atmospheric ozone in destroying oxidizable miasmata, suffers destruction in its turn," and we therefore find very much less in the neighbourhood of towns than in the open country. Thus during the past year 1862, the average amount at Camden Town has been 0.2, at the Royal Observatory, Greenwich 2.1, while at the coast and some inland places there has been as much as 5, 6, and 7. Sometimes, as was the case in some

parts of London near the water level during the whole of the cholera epidemic of 1854, not even a trace can be detected.

It is true that, with the purest external atmosphere, there must be constantly generated in every hospital some mephitic matter, which must sooner or later produce epidemics of so-called hospital diseases if a thorough ventilation be not kept up, and every facility afforded for the egress of air which has already passed over one patient without allowing it to pass over another. It is on this account essential that all hospital wards should have but two rows of patients, and that there should be a window between every two beds. In this way the organic matters given off in the wards, being small in comparison with the fresh air constantly passing through, is soon dissipated by it, or chemically purified by the ozone thus introduced. This is evidently the only true, because the only natural, means we have of preventing or curing that scourge of surgical wards—pyæmia. That such means will sometimes cure confirmed cases of this disease so uniformly looked on as inevitably fatal, I have no less evidence than the authority of that distinguished pathologist and surgeon, Mr. Paget. The following remarkable passage occurs in his address in surgery before the British Medical Association last August, in which he took for his subject the management of patients after surgical operations:—

“The hope that we may yet find specifics which may enable us not merely to treat, but to cure, these diseases, is again encouraged by finding, that even in acute pyæmia, quinine in large doses will cure the rigor fits almost as certainly as it will cure those like them in ague. Curing these ‘outright, and in the strictest sense,’ I think I have known it help to complete recovery. But it will not do more than thus help, and when I recal the various trials, and the various failures or partial successes, *of all the remedies I have used, or seen in use*, I can find but one thing that I can call remedial for the whole disease, pyæmia—and that is, *a profuse supply of fresh air*. In the three most remarkable recoveries I have seen, the patients might be said to have *lain day and night in the wind*—wind blowing all about their rooms.”

II. I now proceed to my second proposition—namely, to adduce statistics in evidence of the mortality caused in our hospitals by London air alone, and here I must say a word about statistics in general. I have often heard it said, “Oh!

statistics may be made to prove anything." There is, however, another older and truer remark, namely—that "Figures tell no stories." It is true that there are such things as falsified statistics, and that people may even deceive themselves by getting statistics of one thing and taking them to represent something else; but taken merely as collections of plain facts, they often teach us great and important truths which would not otherwise be known. Take, for instance, a natural law affecting the whole of that part of the human race in which it has been looked for, which we learn by merely putting down every birth of male and female children respectively—namely, that a certain fixed number of boys are born over and above that corresponding with the number of girls, the proportion being almost invariably every year twenty-one boys to twenty girls. No kind of observation short of the careful registration of all births could have arrived at this simple truth.

The fallacy of mere personal impressions is so constantly being shown, that it need not be illustrated here. As Gavarret remarks, "the *sometimes* of the cautious is the *often* of the sanguine, the *always* of the empiric, and the *never* of the sceptic; but the numbers 1, 10, 100, 1000, have but one meaning to all mankind."

Statistics, then, have shown very clearly that people die more quickly in town than in country. In the ten years from 1849 to 1859, for instance, out of eight millions of people in the town districts of England, 250 people died out of every 1000; while out of the nine and a half millions living in the less densely populated districts, but 180 out of every 1000 died. These figures, then, show clearly some influence in town life to be terribly detrimental to health. This is, no doubt partly dependant on the difference in the occupations of the two populations, but that it is chiefly produced by the mere drawing together of large numbers of human beings, is proved by a table drawn up by Dr. Gairdner, from the Registrar General's Reports. In this table he arranges the districts of all England in the order of their mortality; and, when classed in this way, he shows that those districts being taken together which have a common mortality, there is a constant relation between density and mortality: thus there are in all England and Wales but three districts in which the annual mortality is so low as 15 per 1000. These three districts, taken together, have a population of 56 to the square mile. The next degree of mortality is 16 per 1000. Fourteen districts have each this mortality; they have to-

gether 106 persons to the square mile. The districts having a mortality of 17 per 1000 have an average population of 144 to the square mile, and so on without one single break in the order to the end. Now this shows that density of population has a similar effect on the mortality of country districts to that which it has in towns, without the same possibility of error, the occupations of these populations being of the same nature. It being granted, then, that the mere fact, taken by itself, of residence in a town, makes people more likely to die than residence in the country, what effect has it on the inmates of hospitals? A comparison has been made between the respective mortality in London and country hospitals; thus, in McCulloch's "Account of the British Empire," the following annual rates of mortality are given:—

TABLE I.

Mortality per cent. of cases treated during a year in the	
Salop hospital	3·7
Winchester ditto	3·8
Salisbury ditto	3·1
Chester ditto	4·2
London, seven hospitals	9·0

This only proves, however, that there are more than twice as many persons die in the London hospitals as do in the country ones; not that out of every 100 in the London hospitals but 3 or 4 would have died had they been treated in the country, for they may have been, as they no doubt generally were, much more serious cases than the country ones. We must, therefore, take for comparison one particular kind of affection, and of a kind not likely to be necessarily of a more fatal character in one place than the other. The classes of cases, statistics of the results of which, in London and country hospitals respectively, are given in the series of tables in pages 16, 18, and 19, must fairly be considered to be as severe in the country as in London. Calculi in the bladder are certainly apt to be as large in the one case as the other; while it would be very strange if all those accidents which occurred in London were of a more severe character than those which happened in the country; as Mr. Hutchinson says of his own statistics of stone-cases, of which I have copied the table, "None can entertain a doubt that our statistics really prove that a great difference in result does obtain in our provincial and our metropolitan hospitals. The apparent difference is so great that it is impossible but that a considerable part of it must be real. To what, then, are we to attribute

The following tables are compiled by Mr. Jonathan Hutchinson, and published by him in the *Medical Times and Gazette* of August, 1859. The statistics comprise all the cases collected by him for all the London Hospitals, and a large number of those of the Provinces.

Whole Number of Stone Cases in Males, including Lithotomy and Lithotrity.

Age.	Number of Cases.		Recovered.		Died.		Proportion of Deaths.		
	London.	Pro- vincial.	London.	Pro- vincial.	London.	Pro- vincial.	London.	Pro- vincial.	
1	1	1	1	1	...	...	None	None	Under 10 years of Age
2	8	10	7	9	1	4	1 in 8	1 in 10	
3	24	16	20	14	...	...	1 in 6	1 in 8	
4	15	22	15	19	...	3	None	1 in 7	
5 to 8	43	48	40	47	3	3	1 in 14	1 in 48	Between 10 and 15
8 to 10	18	16	18	15	...	1	None	1 in 16	
10 to 15	22	29	16	28	6	1	1 in 4	1 in 20	
15 to 20	8	6	8	5	...	1	None	1 in 6	
20 to 25	8	13	7	9	1	3	1 in 8	1 in 4	Between 25 and 45
25 to 30	4	6	2	5	1	1	1 in 4	1 in 6	
30 to 35	3	5	1	4	2	1	2 in 3	1 in 5	
35 to 40	3	6	2	5	1	1	1 in 3	1 in 6	
40 to 45	2	5	...	3	2	2	All	2 in 5	Between 45 and 60
45 to 50	4	5	1	2	3	2	3 in 4	2 in 5	
50 to 55	7	3	4	4	3	1	3 in 7	1 in 5	
55 to 60	13	16	7	14	6	2	1 in 2.1	1 in 8	
60 to 65	11	16	3	10	7	4	2 in 3	1 in 4	Between 60 and 80
65 to 70	9	8	5	6	4	2	1 in 2.2	1 in 4	
70 to 75	3	3	1	3	2	...	2 in 3	None	
75 to 80	1	2	...	2	1	...	All	None	
Total.	207	238	157	207	47	29	1 in 4.4	1 in 8	

{ London—100 cases and 8 deaths;
 or 1 in 13 $\frac{1}{2}$.
 Provincial—113 cases and 8 deaths;
 or 1 in 14.
 { Lon.—38 cases and 7 deaths; or 1 in 5 $\frac{1}{2}$.
 Pro.—48 cases and 5 deaths; or 1 in 9 $\frac{1}{2}$.
 { Lon.—12 cases and 6 deaths; or $\frac{1}{2}$.
 Pro.—22 cases and 5 deaths; or $\frac{1}{4}$.
 { Lon.—24 cases and 12 deaths; or $\frac{1}{2}$.
 Pro.—26 cases and 5 deaths; or one-fifth.
 { Lon.—24 cases and 14 deaths;
 or more than $\frac{1}{2}$.
 Pro.—29 cases and 6 deaths;
 or one-fifth.

it? We may fairly presume that the amount of surgical skill to be met with in the two series of hospitals is equal; and we believe that the same rules of practice prevail in each; *i. e.*, the ordinary lateral operation was performed in each in almost all the cases." Mr. Hutchinson ascribes the difference partly to the superior sanitary advantages of the provincial hospitals, partly to the effect of intemperance and other regularities on the system of the London patient. Intemperance is, however, I fear, very nearly as common a vice with the countryman as the citizen, while deficient food is a misfortune which the poor man has to endure far more constantly in country than in town districts. It is to Mr. Hutchinson's exertions that we are indebted for the series of hospital statistics, more or less regularly published in the *Medical Times and Gazette* during the years 1854, 1855, 1856, 1857, 1858, and 1859. They are the only statistics of the kind that have ever been attempted, or, at all events, ever been published either in England or elsewhere. Indeed, until the recently published statistics of Bartholomew's, Guy's, and St. Thomas's Hospitals, no authorized general statistics of any hospital with which I am acquainted have ever been made public, with one honourable exception—namely, the statistics of the Bristol Infirmary for the years 1848 and 1849, admirably drawn up by the then house-surgeon, Mr. A. Hore. Mr. Hutchinson's statistics, therefore, were, at the time they were published, the only authentic records of civil hospital practice of sufficient extent to be in any way available for scientific purposes; and they still stand alone in this respect, so far as provincial hospitals are concerned.

In regard to their accuracy, Mr. Hutchinson has assured me that he took the greatest care to test the correctness of the returns which were made to him by the resident medical officers and house-surgeons of the different hospitals, and I can myself testify to the strictness of his inquiries and his supervision of the cases, as I myself held one of those offices during a portion of the time. In the compilation of Tables II. and III., I have made most careful and impartial use of his statistics for the years 1855-8. Those for the country hospitals are not, however, simple additions of all his cases, for this reason: Many of the hospitals, the results of which are given in the provincial list can by no manner of means be ranked as country hospitals. Of this kind are the various Liverpool hospitals, those of Birmingham, Leeds, Hull, Newcastle, and Glasgow. The cases furnished to the statistics from these hospitals were about as numerous as those from all

STATISTICS OF AMPUTATIONS.

COUNTRY.

TABLE II.

All Principal Amputations.*

	Primary.	Secondary.	For Disease.	All kinds.
Thigh	$\frac{4}{13} = \frac{30.7}{100}$	$\frac{6}{15} = \frac{40.0}{100}$	$\frac{23}{109} = \frac{21.1}{100}$	$\frac{33}{137} = \frac{24.1}{100}$
Leg	$\frac{9}{36}$	$\frac{4}{19}$	$\frac{10}{59}$	$\frac{23}{114} = \frac{20.2}{100}$
Foot	$\frac{0}{12}$	$\frac{0}{1}$	$\frac{2}{15}$	$\frac{2}{23} = \frac{7.0}{100}$
Arm	$\frac{3}{68}$	$\frac{5}{14}$	$\frac{4}{27}$	$\frac{12}{109} = \frac{11.1}{100}$
Total ..	$\frac{16}{129} = \frac{12.4}{100}$	$\frac{15}{49} = \frac{30.6}{100}$	$\frac{39}{210} = \frac{18.5}{100}$	$\frac{70}{388} = \frac{18.0}{100}$

London and Country Hospital Statistics, *Medical Times and Gazette*, 1855-8.

LONDON.

TABLE III.

	Primary.	Secondary.	For Disease.	All kinds.
Thigh	$\frac{11}{19} = \frac{57.6}{100}$	$\frac{4}{7} = \frac{57.1}{100}$	$\frac{28}{116} = \frac{24.1}{100}$	$\frac{43}{142} = \frac{30.2}{100}$
Leg	$\frac{11}{24}$	$\frac{4}{5}$	$\frac{9}{46}$	$\frac{24}{75} = \frac{32.0}{100}$
Foot	$\frac{0}{3}$	$\frac{0}{1}$	$\frac{3}{20}$	$\frac{3}{24} = \frac{12.5}{100}$
Arm	$\frac{7}{30}$	$\frac{3}{9}$	$\frac{7}{30}$	$\frac{17}{69} = \frac{24.6}{100}$
Total	$\frac{29}{76} = \frac{38.1}{100}$	$\frac{11}{22} = \frac{50.0}{100}$	$\frac{47}{212} = \frac{22.1}{100}$	$\frac{87}{310} = \frac{28.0}{100}$

TABLE IV.

Amputations of the Thigh.

	Primary.	Secondary.	For Disease.	All kinds.
County Hospitals, } 1855-8. <i>Med. Times</i> and <i>Gazette</i>	$\frac{4}{13}$	$\frac{6}{15}$	$\frac{23}{109}$	$\frac{33}{137}$
Bedcliffe Infirmary, } 1838-52. (Hussey,)	$\frac{5}{6}$	$\frac{0}{2}$	$\frac{9}{70}$	$\frac{14}{78}$
Exeter Hospital. } (James.)	$\frac{6}{10}$	$\frac{7}{18}$	$\frac{11}{118}$	$\frac{24}{146}$
Total	$\frac{15}{29} = \frac{51.7}{100}$	$\frac{13}{35} = \frac{37.1}{100}$	$\frac{43}{297} = \frac{17.1}{100}$	$\frac{71}{361} = \frac{19.6}{100}$

* The two first tables are compiled from statistics published in the *Medical Times and Gazette*, and collected by Mr. Jonathan Hutchinson, Surgeon to the Metropolitan Free Hospital.

† The numerators of the fractions are the numbers of deaths; the denominators the numbers of cases operated on.

TABLE V.

	Primary.	Secondary.	For Disease.	All kinds.
Guy's Bartholomew's, } and St. Thomas's, 1857-61. (Published Statistics.)	$\frac{9}{12}$	$\frac{13}{28}$	$\frac{9}{26}$	$\frac{31}{66}$
All London Hospitals } 1855-57. (<i>Medical</i> <i>Times and Gazette</i> .)	$\frac{11}{19}$	$\frac{4}{7}$	$\frac{28}{116}$	$\frac{43}{142}$
Total	$\frac{20}{31} = \frac{64.5}{100}$	$\frac{17}{35} = \frac{48.5}{100}$	$\frac{37}{142} = \frac{26.0}{100}$	$\frac{74}{208} = \frac{35.5}{100}$

Gray's, Bartholomew's, and St. Thomas's, 1857-61	9 $\frac{2}{28}$	2 $\frac{2}{12}$	2 $\frac{2}{18}$	13 $\frac{58}{58}$
All London Hospitals, 1853-57	11 $\frac{2}{24}$	4 $\frac{5}{5}$	9 $\frac{48}{48}$	24 $\frac{75}{75}$
Total	20 $\frac{38}{52}$ 4 $\frac{100}{100}$	6 $\frac{35}{17}$ 2 $\frac{100}{100}$	11 $\frac{17}{64}$ 0 $\frac{100}{100}$	37 $\frac{27}{133}$ 8 $\frac{100}{100}$

Amputations of the Thigh and Leg (taken together.)

Added from above..... $\frac{17.3}{100}$	111 32.5 $\frac{341}{100}$	All kinds.
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Contry Hospitals, } <i>Medical Times and</i> <i>Gazette</i>	9 $\frac{36}{36}$	4 $\frac{19}{19}$	10 $\frac{59}{59}$	23 $\frac{114}{114}$
Radcliffe Infirmary, } 1834-52	0 $\frac{13}{13}$	0 $\frac{2}{2}$	1 $\frac{35}{35}$	1 $\frac{50}{50}$
Exeter Hospital, } 1816-49, (James,) }	6 $\frac{17}{17}$	2 $\frac{6}{6}$	5 $\frac{57}{57}$	13 $\frac{80}{80}$
Total.....	15 $\frac{22.7}{66} = \frac{100}{100}$	6 $\frac{22.2}{27} = \frac{100}{100}$	16 $\frac{10.6}{151} = \frac{100}{100}$	37 $\frac{15.1}{244} = \frac{100}{100}$

TABLE VIII.

All kinds.	$\frac{418}{610} \frac{108}{505}$
Added from above.....	$\frac{23}{130}$
Addenbrooke's Hospital, Cambridge, 1860. (Dr. Humphry.)	$\frac{141}{700} \frac{187}{100}$
Total.....	

TABLE XI.

	Primary.	Secondary.	For Disease.	All kinds. <i>i</i> .
Country Hospitals, } 1855-58	$\frac{3}{68}$	$\frac{5}{14}$	$\frac{4}{27}$	$\frac{12}{109} = \frac{11.1}{100}$
Radcliffe Infirmary, } 1838-52	$\frac{4}{31}$	$\frac{1}{2}$	$\frac{0}{19}$	$\frac{5}{52} = \frac{9.6}{100}$
Exeter Hospital	$\frac{3}{19}$	$\frac{1}{4}$	$\frac{1}{18}$	$\frac{5}{41} = \frac{12.1}{100}$
Total.....	$\frac{10}{118} = \frac{8.4}{100}$	$\frac{7}{29} = \frac{35.0}{100}$	$\frac{5}{64} = \frac{7.8}{100}$	$\frac{22}{202} = \frac{10.8}{100}$

Amputations of the Arm.

	Primary.	Secondary.	For Disease.	All kinds.
London Hospitals, } 1855-58	$\frac{7}{30} = \frac{23.3}{100}$	$\frac{3}{9} = \frac{33.3}{100}$	$\frac{7}{30} = \frac{23.3}{100}$	$\frac{17}{69} = \frac{24.6}{100}$

the others which were more entitled to rank as country hospitals. Such seemed to me to be the hospitals at Reading, Cheltenham, Carlisle, Dorset, Gloucester, Lynn, York, Norwich, Leicester, and Dundee. In both instances I have omitted to count any case which was described as under treatment, except when it was added that they were doing well; and these I classed with the cured, chiefly because those which were described in this manner were exclusively London ones, from the fact of those reports being monthly, while the others were never more frequent than quarterly. The number added to the list of successful London operations in this way was eleven, chiefly for disease. I feared to omit these, lest I should be thus giving the country tables an unfair advantage. The other tables, from 3 to 11 inclusive, embrace all the reliable statistics which have been at any time published, which could fairly be brought to bear on the question to be decided.

To all those who know how important it is in these analyses to take care to compare like with like, they will I think speak for themselves, and can receive but one interpretation, namely, that in the experience which those statistics represent, the country hospitals had in all cases of amputation, taken together or separately, according to their seat, a considerable advantage over the London ones. It is true that the differences are not so great in the aggregate as we might have expected to have found them from the favourable results so constantly obtained at some hospitals, such as those of Exeter, Oxford, Reading, Leicester, &c.; but we may recollect that the greater number of the institutions, of which Table II. represents the sum of their results in amputations, either have sites which from the density of the population around them, approach in character those of town rather than that which a truly country hospital should have, or they have such bad organization, ventilation, drainage, &c., that all advantages their site may afford them are completely negated. The Sussex County and the Winchester Hospitals have furnished practical illustrations of this up to a very recent period. A number of truly country hospitals as well drained and ventilated as the average of those in London would offer still more striking contrasts than those on pages 18 and 19.

Scarcely any statistics have been published bearing on the difference in the mortality from medical diseases in the London and provincial hospitals. I am myself collecting facts on this point as well as on the surgical results of the two, but at pre-

sent they are too few to be conclusive. So far as they go, however, they are very favourable to the country hospitals. The Returns I have received from the Royal Dundee Infirmary are particularly illustrative of the benefits of suburban hospitals in this way. Dundee itself is, so far as my own experience goes, quite as foul as the greater number of large manufacturing and mercantile towns, and its general mortality is very high. The infirmary used to be in the town itself, but about five years ago it was built outside and above it. There were admitted into it from June, 1858, to the end of 1862 :—

422 cases of Bronchitis, of whom	20 died.
150 „ Pneumonia „	28 „
31 „ Compound fracture of the leg	5 „

Now, taking all the statistics that have been published of the three chief London hospitals—St. Bartholomew, St. Thomas's, and Guy's, some of which go back so far as 1857—we find that out of

876 cases of Bronchitis	157 died.
485 „ Pneumonia	112 „
105 „ Compound fracture of the leg	40 „

Thus giving for Bronchitis a mortality of

17.9 per cent. in the London hospitals.

4.7 „ „ Dundee Infirmary.

For Pneumonia, a mortality of

23 per cent. in the London hospitals.

18.6 „ „ Dundee Infirmary.

For Compound fractures of the leg, a mortality of

38 per cent. in the London hospitals.

16.1 „ „ Dundee Infirmary.

For these figures I am indebted to the Medical Superintendent, Dr. Glen.

Here, then, in a city with a poor population, decidedly more impoverished and unhealthy than that of London, we get a hospital losing, of patients suffering from the very same medical and surgical affections, less than half the proportion of those who die in our London hospitals, notwithstanding the far greater reputed skill of their medical staffs.

III. I will now enter into the details of that which seems to me a perfectly practicable plan for allowing of the treatment in a purer air of such sick persons as were usually treated in the wards of old St. Thomas's Hospital.

First. A suitable situation must be found in the immediate vicinity of either of the two principal lines of railway, or of some of their first branches: the suitability of the situation will depend almost entirely on its healthiness. On this account it is essential that the site should be high, dry, and airy; and that it should be isolated as much as possible from other buildings. North of the low range of hills extending from New Cross to Battersea, the London clay is covered by alluvium, and the whole of this part was no doubt overflowed by every high tide, forming an extensive marsh, till gained from the river by embankment. South of this line of rising ground we soon arrive at much higher hills; those about Norwood, for instance, of which one is 389 feet above the sea-level. Even if we went for our hospital site so far south as the Banstead Downs, which are more than 180 feet higher, and are of the plastic clay formation, with a subsoil of chalk, we should only have to travel twelve miles by rail, and this would certainly not take more than twenty minutes by regular train. Many eligible and available sites might, however, be easily found much nearer to town than this. The site having been determined on, and procured, and the hospital built on that plan which is most favourable to the free transmission of air through its wards, arrangements must be made with the Railway Company for a thorough co-operation with the authorities of the hospital in the working of the system. Immediately contiguous to the central station a commodious building should be erected, adapted in every particular for all the immediate requirements of every kind of illness or injury likely to occur in a large and crowded city. There should be out-patients' rooms, accident-wards, dispensary, operating theatre, &c.; in fact, everything that we find in our present hospitals, except the wards for the permanent treatment of in-patients.

The whole class of *out-patients* would be attended as they now are, by the assistant-physicians and the assistant-surgeons of the hospitals. These gentlemen would attend daily for this purpose, as well as for that of giving orders for admission as in-patients to such of the number whose cases seemed to require it.

Every case of *emergency*, requiring prompt and energetic treatment for the saving of life, the prevention of more serious mischief, or the relief of suffering, would be attended to, as these cases now are, by a medical officer resident in the building. Fractures would be set, dislocations reduced, bleeding arrested, impending suffocation averted, and poisons removed

from the stomach, or counteracted by antidote, just as quickly as they now are, and much in the same way, except that in most of the London hospitals, the important duties involved in the immediate treatment of such cases of sudden emergency, are usually performed by comparatively very inexperienced, though talented young men, who are not allowed to retain the office for more than six months, or some shorter period, and who are constantly, therefore, for a considerable portion of the time they serve, quite unaccustomed to their work. Whether this be the case in St. Thomas's Hospital or not, I am unaware; but such are the duties and the capabilities of the house-surgeons of almost all the hospitals in London. The senior resident medical officer being then a man old enough to have gained sufficient experience to be able to practise successfully in private, he must be so remunerated as to make it worth the while of men of abilities to forego that advantage: he would have to take the sole responsibility of the treatment of every urgent case that might be brought to the building at any time of the day or night. He would, therefore, from the nature of his duties, seldom leave the place, even for the shortest period; and when compelled so to do, he must be required to leave in his place, a man as qualified for the duties as himself. The Resident Medical Officer of the London building might, however, with advantage to the Institution, be allowed to receive the visits of, and prescribe for private patients, though he could not visit them at their own homes.

With the greater number of persons requiring admission as *In-patients* no difficulty whatever could attend their regular transmission to the principal hospital. As I said above, every day a certain number of Out-patients present themselves at the usual hour, who, from the severity of their illness, or other peculiarities in their cases, require perfect rest or constant supervision for their proper and efficient treatment. Far the greater number of those who apply for admission as in-patients arrive in this way at our hospitals at a certain time of the day. It generally happens that cases of even very severe illness, have to wait a day or two before a bed can be vacated for them. Of course, when it is evident that the least delay may endanger life, an order for immediate admission is at once given; but few cases which are not of the accidental class are admitted till the day after the application is made. Nine-tenths of the fresh cases, therefore, would present themselves at the London branch of the hospital at a certain time in the day, and these would be passed on at once to the wards of the

hospital itself. This would be done without any change of conveyance from the door of the one to that of the other, and for this purpose it is essential that the London building should be made in every respect but the portal of the hospital itself. Nothing will, I think, better express the relation it should hold in this respect than the name by which I propose, that it should be known, viz. :—" St. Thomas's Lodge." Though St. Thomas's Hospital be removed to the country, it would still leave its Lodge in town, offering as easy access to its health-giving wards as the poor of Southwark have ever had into those of its less favoured progenitor. As I have premised, the grounds of the hospital must have such a relation to one of the South London lines of railway, that, at some part of their extent, they should allow of a tramway, connected with the regular line of rails, which should pass along the front of the building to the doors of the wards themselves. In the same way, at the central terminus, a short connexion must be made with the back-door of the Lodge. Two or three railway carriages would be required, specially adapted for the work, and, therefore, necessarily the property of the Hospital. One of these would pass at regular hours to and fro between the Hospital and its Lodge, two or three times in the day. Any possible number of patients might thus be conveyed, therefore, in the course of the day. During the night, the house-surgeon is very frequently disturbed to attend various kinds of cases of emergency, but so far as my own experience goes, and I was for an unusually prolonged period House-Surgeon to University College Hospital, the number of really severe cases is very small indeed in comparison with that of slight cases of injury, &c., in which the patient is able to walk home immediately the treatment necessary has been applied, attending afterwards, if need be, as an out-patient. Of this kind are cases of intoxication, cuts in the head in nocturnal broils, cases of retention of urine, simple fractures of the forearm, arm, or collar-bone, &c. &c. All such cases are considered too simple to require admission to a bed in any hospital with which I am acquainted. Taking the average, there may be, perhaps, at the outside, three or four night cases brought to a hospital in the course of a week of such severity as to require admission. For the transference of these cases as soon as possible to the ward in which they are to remain during the whole course of their treatment, at least one of the hospital carriages should always be kept in readiness, both day and night. These carriages should be subdivided into three com-

pletely separate compartments, one of which would be set apart for Hospital Officials, another for patients capable of being seated, and the third for those unable to travel in any such manner from the severity of the injury or disease from which they are suffering. This compartment should be the central one, for its greater protection against shocks, and to allow of the occasional or constant supervision, as may be required, of any medical officer who may be the occupant of the adjoining one. In order to reduce to a minimum that jolting which is never quite avoidable even with the most delicate springs in any carriage, especially a railway one, I would propose the following contrivance for the severe case compartment. A kind of false bottom, six inches smaller both in length and width than the true floor, should be suspended and more or less fixed about six inches above it, by means of four strong india-rubber bands passing from each of its four corners to the roof, floor, and two contiguous sides of the compartment. The whole side should open by two large doors similar to those of railway luggage-vans, so as to allow of the beds in which the patients lie, being easily placed on the platform. As before implied, a door of communication should exist between this compartment and that of the medical officers. One of the carriages of the hospital should contain, instead of this compartment, one suited for the conveyance of such of the friends of the patients as may have had tickets supplied them by the hospital authorities, allowing them to visit them on the proper days. Their tickets should allow them to pass through the station and take their seats in the carriage just as any ordinary railway cheque.

The only cases, the management of which, according to the new system, seems to me to require any further elucidation, are those of severe cases of surgical injury. These would, of course, have their immediate requirements attended to by the resident medical officer, according to their several needs. Take, for instance, a case of simple or compound fracture of a limb not requiring primary amputation. The patient would, of course, be first taken, as now, into the proper reception-ward of the Lodge; as now, he would be at once placed on a comfortable bed, his clothes removed, and his injury examined. The same treatment would thus be adopted as is now—first, the bone would be reduced, and the wound, if the fracture is compound, closed. The proper splints and bandages required during the whole of the first stage of the treatment would then be applied, and soothing medicines administered if re-

quired. This having been done, the patient would be allowed to remain where he is until the time for the departure from the terminus of the next train stopping at the hospital station. When the carriage is ready to be attached to this, then the bed on which the patient is lying, and which should, of course, be adopted for the purpose in regard to lightness, hinged handles, &c., would be carefully raised, carried to the door at which the carriage is waiting, and carefully placed on the platform. If he were so alarmingly ill as to require the attendance of a nurse or dresser on the road, these would, of course, be despatched with him, returning, if need be, with the carriage by the next up-train. On the train arriving at the hospital station, the hospital carriage would be detached from it, shunted on to the tramway, and drawn by horses up to the door of the ward itself. Here the bed would be as gently withdrawn from the carriage, and placed in its permanent position in the ward as it had been removed from the Lodge. When we compare the facilities thus offered for the transport of our hospital patients with those possessed by the military surgeon, who has to convey his wounded, suffering from the very severest injuries that can by any possibility occur, on rough roads, and sometimes through parts in which there are no roads; and when we recollect that the results of their practice are so constantly more favourable than those of our present London hospitals, we need not for one moment fear so simple a proceeding. I feel confident that if a severely wounded man were to sink into a slumber, as he sometimes will after the pain of setting a fracture or other primary treatment has subsided, that the removal might be effected without his being disturbed, and that he might wake in the hospital ward without having been aware of the change.

Cases in which a limb has been so injured that it is useless to attempt to save it, are treated on different principles by different surgeons; some, I may say the greater number, prefer to amputate immediately, when the shock of the accident has not been so great as to make the additional one of the operation dangerous; others prefer always to wait for reaction, while others, again, allow days or even weeks to elapse before performing what is then called a secondary amputation. These differences of practice would, of course, still occur. Primary amputation might be performed immediately the visiting surgeon could be summoned to the patient at the Lodge, or he might be allowed to rally for an hour or two before it was performed, or it might be preferred to postpone

it for more hours or even days, in which latter case, of course, the operation would be done at the hospital. In any case, the patient might be safely transferred from the Lodge to the hospital itself, whether the injured limb had been previously removed or not. No authority on military surgery with which I am acquainted mentions any inconvenience from the transport of cases of amputation. In fact, the great success of those very cases which have always to be thus transported—viz., their primary amputations, over those which, from being performed in hospitals, have not to be so carried, viz., their secondary amputations is conclusive proof of the truth of that which many of their authorities bear evidence to, viz., the advantage of carrying the wounded for long distances with the army, even in the rough country carts which Sir James McGregor had generally to use for this purpose in the Peninsular War. I may mention that, among other experienced military surgeons who have assured me of the same thing, Dr. Stephens, late surgeon to the Commander-in-Chief in India, tells me he never knew *one* instance of ill-consequence from the transport of wounded during the whole of his experience, although he often had occasion to send the worst possible cases extremely long and harassing journeys, especially during the campaigns which he served with Lord Gough.

I will, before closing this part of my subject, cursorily allude to the effect which the adoption of the system would probably have on the medical school of the hospital. Bearing in mind that the most important part of the study of medicine is the observation of disease, I should consider the proper residence for the student to be in the neighbourhood of the hospital: some might prefer to find lodgings for themselves; many, however, would probably be willing to reside in a collegiate establishment, in which they would have advantages which they could not have elsewhere,—such as a well-furnished library, a museum, a chemical laboratory, &c., &c. Every student, however, whether residing in the establishment or not, would necessarily have free access to them, as well as to the dissecting-room, which should be in the vicinity of the college, and not as now making a very serious addition to the other sources of impurity in the metropolis.

Many of the lecturers in medical schools are not practitioners of medicine. I think it is the exception for the Professor of Chemistry, Anatomy, Physiology, and Botany to be engaged in medical practice. These lectures, therefore, might, I think,

with great advantage to the student be delivered in the College. For the Professors of Medicine and Surgery, however, there should certainly be lecture-rooms attached to the Lodge, as these gentlemen are almost invariably in private practice, and therefore could not so conveniently absent themselves from town. Besides, the proximity of the neighbouring medical and surgical out-patients might often afford valuable illustrations to the lecturers,—a mode of instruction I have often seen Dr. Jenner practice with great advantage to his class. The journey to and fro for those senior students who require to attend these lectures, as well as to see the practice of the Lodge, will scarcely be represented as a hardship even by themselves, especially when we think of the long distances which many city men of business voluntarily place between their work and their homes.

IV. Lastly, I will consider the various arguments which have been used against the reconstruction of St. Thomas's Hospital in the country. In doing so, I must premise that of all that has been said and written with the object of showing the disadvantage of a country site, nothing has been in any way applicable to such a plan as that I have suggested. It has been always taken for granted that those urgent cases which require immediate treatment must either be kept in London during the whole of their treatment, or be taken the whole distance to the place where they are to be permanently treated, without any previous attention to their immediate requirements; that it was actually intended by those who recommended the removal, to deprive London altogether of the advantages which the hospital has hitherto offered for all cases of emergency.

I have no hesitation whatever in taking the published statement of your own visiting staff as the sum of all that can be fairly urged on this side of the question. It is, I think, entitled to the eulogy of the editor of the *Times* newspaper—namely, that it is exhaustive. If, then, I can answer all the objections therein raised, I shall consider myself fairly entitled to a favourable verdict. First, they assert that the hospital must cease to relieve the attacks of acute disease and the immediate effects of severe accidental injury, in proportion as it is moved away from the densely inhabited central districts of London. They go on to enumerate a number of accidents, and a few varieties of sudden illness, in which, as they say,

"the first consideration with the sufferer and his friends is, that relief shall be prompt." I can scarcely understand how these gentlemen can have thought it worth their while seriously to discuss so absurd a proposition as that of persons suffering from severe "wounds, fractures, dislocations, burns, scalds, and poisonings," "suffocation," "retention of urine," "hæmorrhage," and "misadventure in childbirth," being dragged five or six miles into the country, or anywhere else before relief was afforded them. Very few words must suffice to prove the propriety of attending as "promptly" as possible to a man who is on the point of suffocation, or of bleeding to death; they may well add that they attach much importance to this argument.

I have already considered the attention which would be necessary for the greater number of the affections they mention; some of them, however, do not appear to me to demand the immediate attention required by the others. "Cases of dangerous continued fever," for instance, would, in my opinion, derive more benefit by being passed on as quickly as possible into a purer atmosphere than by any treatment to which they could be subjected at the Hospital Lodge, always supposing that a sufficient administration of stimulants should be kept up from the first moment that cases showing the extreme exhaustion peculiar to this disease, come under notice; and this need not be interrupted in the least during their transit from the Lodge to the Hospital. Cases of hernia (or rupture) would of course be reduced at once when possible by the resident surgeon of the lodge, and such patients would not require being sent to the hospital at all. In those cases on the other hand, in which the resident surgeon finds that he is unable to return the displaced bowel without an operation, the postponement of this even for an hour or two for the purpose of having it performed at the hospital could in no way effect the chances of recovery. As a rule, however, it would no doubt be found more convenient for the surgeon to perform the operation at the lodge, as no possible disadvantage could attend the careful transit of these cases at any time after as well as before the operation. Cholera, like all other zymotic diseases, of which it may be taken as the type, is, as I have shown elsewhere, almost always severe in proportion to the impurity of the atmosphere surrounding those suffering from it, and like other contagious fevers, therefore, the sooner it is treated with pure air, the sooner it is likely to show a tendency to recovery. Cases of apoplexy and epilepsy

would of course be received and temporarily treated at the Lodge. The former disease is one of those in which the unconscious patient might be most easily conveyed to the hospital at any period of the attack, though in many cases air, whether pure or impure, is soon a matter of very little consequence to him. Most cases of epilepsy would be allowed to go home after recovering from the fit, and resting for a short time at the lodge. Cases of acute inflammation in the chest, head, and abdomen, would seldom require any treatment in the short period intervening between their reception at the lodge and their arrival at the hospital. In fact these are the kind of cases that are generally admitted into hospital at a certain hour of the day according to our present system. They certainly would all be influenced to run a more sthenic course by the more favourable circumstances in which they would be placed by the journey, as I have elsewhere shown.

I may add, though this but little affects the question, that I know of no hospital in London or elsewhere where two-thirds or even one-sixth of the patients are suffering from recent injury or acute disease.

2. I think I may now be allowed to pass on to the second objection, namely, that "the distance between home and hospital is an important consideration with the sick man, because the distance makes it much more difficult for his friends to visit him if they have to walk many miles or to pay hard-earned money for conveyance." Those who have taken the trouble to follow the details of the plan which I have described above, will have seen that this difficulty has been easily and efficiently met by the appropriation of railway carriages belonging to the hospital for the purpose of gratuitously conveying at regular times, all friends who can show visiting tickets supplied to them by the authorities. Those who have friends in the hospital so ill as to make it desirable for them to be visited at other than the regular days, would be supplied with another description of visiting ticket, which would allow them to travel by any train which stops at the hospital station.

3. The third objection is, I frankly admit, less easily dismissed than either of those which have been already considered.

It is that eminent medical men could not possibly continue to give habitual attendance to the hospital, that the ultimate responsibility would thus rest on resident officers not engaged in private practice, and that, therefore, as a rule, the standard

of skill employed in hospital attendance would tend to degenerate. That there is some force in this objection I will not deny, insomuch as that those medical men who form the visiting staff of our London hospitals are generally actively engaged in private practice, and would therefore find even an additional half hour spent in gratuitous hospital service a matter of additional inconvenience and even pecuniary loss ; and it is on account of the undeniable disadvantage which the visiting staff must thus suffer by any such change as that proposed, that it is scarcely fair to those gentlemen to expect them alone to decide a question in which they are, by their own showing, so personally interested. Nevertheless, those gentlemen will, I am sure, readily admit that in a public charity like St. Thomas's Hospital, the true objects of the charity must be considered before any such personal interests ; and that the chances of recovery of a hospital patient do not exclusively depend on his being supplied with the best reputed London skill, is conclusively shown by the statistics I have already laid before you. Were the new system introduced for all London, comparatively few of the visiting medical officers would, I think, find the extra half-hour taken up by the additional journey, a sufficient reason for resigning their appointments ; but supposing, for the sake of argument, that they would cease to make their visits three times a week as before, they would, I am quite sure, not refuse to make one weekly visit ; the physicians, for the purpose of laying down general principles of treatment to their subordinate resident officers, and of giving to pupils clinical illustrations of their lectures ; the surgeons, for the performance of principal operations. Whatever may be the theory of the present system, the ultimate responsibility for medical and surgical treatment must of necessity rest on the resident officers. There are few forms of acute diseases in which the plan of treatment has not often to be changed in the forty-eight hours which intervene between the attendances of the visiting officer. Where the resident medical officer of the present system would be considered inadequate for the duties which would be required of him in the new, he must give place to one who is adequate, even though the change might necessitate a greater call on the funds of the hospital for the increase of the emoluments of the post ; though any exaltation of the duties will necessarily add to the desirability of the office for talented and rising men.

4. I have before shown that the corollary need be no more true than its antecedent propositions. The eminent physi-

cians and surgeons constituting the professors of the medical school, need not deliver their lectures at a further distance from home than that they have to travel now, and the pupils would not have "diminished resources for instruction," because the hospital would not be "almost wholly transformed into an asylum for chronic disease." The school, as I have said before, would probably soon be larger than it has ever yet been. Corollary No. 2 necessarily depends on No. 1, and so *vice versâ*, the school not being destroyed, the work of the charity would therefore continue to be carried on as now with the assistance of a staff of junior officers selected from the students.

IV.—1. The supporters of the country site do not consider the size of the estate on which the hospital is built, to be of any importance in comparison with that of a healthy site; but being assured of the advantage of building in the country, they argue that they can get the additional advantage of large quantity of land attached to the hospital, at a very much less rate than they could get a very small quantity of ground in town.

2. Those of your visiting staff who believe, with most of their professional brethren, that, *cæteris paribus*, a hospital in the country would have an appreciable superiority of success over one in London, cannot, so far as I can see, demur to any of the principal conclusions at which I have arrived in this letter; the others merely assert their unbelief in the beneficial effects of country air, without adducing one single reason for their opinion. It is true that they throw a doubt on the unhealthiness of towns being the *simple result* of the difference in the atmosphere; that they assert that dirty houses and close alleys are much more unhealthy than clean hospitals and wide streets; that sanitary reformers say that town residence ought to be as healthy as country residence; and, lastly, that model lodging-houses are healthier than the other dwellings of the poor: but in all this, I am ready to agree with them. They evidently cannot deny that the common atmosphere of towns has *some* effect in the production of disease, and they cannot assert that town residences can be made as healthy as country residences can, according to our present knowledge.

V.—I should be as sorry to see the adoption of the proposed compromise referred to, under the fifth head of the statement, as any of your visiting staff; for by it those very cases would

be left behind, in which there would be the largest number of lives saved by removal.

VI.—The need which seems to me to be even more imperative than that mentioned in the last portion of the statement is, that we should make the best use we can, of such means as are placed at our disposal by the progress of science, for making St. Thomas's Hospital minister more and more efficiently than it has formerly done to the sick and suffering poor of the neighbourhood of its old site, for it would be in these very people that we should see the most striking benefits from the system proposed. There have been numerous objectors, but few objections raised, that are not comprised in the statement I have just considered. I have known few subjects on which the same thing has been said in so many different ways; many of the leading organs of the press, several boards of guardians, and even the Court of Common Council itself, have joined in declaiming in the strongest language against that which, so far as I know, was never intended—viz., the making the benefits of the institution inaccessible to the poor of Southwark. That false impression removed, I feel sure that much of the argument I have used must be to many of you needless.

The weakest objection of all is one which has also been over and over again urged; that there can be no occasion to alter a state of things which has existed so long, and that we ought to be satisfied with what has satisfied our forefathers for three hundred years. I hope, gentlemen, that that argument at least will have no influence with you; the responsibility which has devolved upon you is not that of merely doing what has already been done; nothing short of doing the very best that can be done for the poor people that have been placed under your care will, I hope, satisfy you. The longer the evil has existed, the more lives must have been sacrificed by it, and the sooner that sacrifice is stayed the better. The universal law of nature is progress; and the truth which I have been endeavouring to impress upon you, is one that must sooner or later be recognized, like all other truth. The time must one day come when people will no more think of building hospitals for the sick of towns in the centre of the foul air which has enfeebled them, than they now would of curing those suffering from ague in one placed in the centre of a marsh. You have now a glorious opportunity of setting an example which every other hospital must soon follow; let this pass away, and many generations must probably come and go before another such occurs.

Do not be content with hearing what one party or the other has to say, but examine the question well and seriously for yourselves. That which I have said, and much more, might have been far better put by one with more ability and leisure than that accorded to me. Do not, I entreat you, confound want of power in the advocate with weakness in the cause he pleads.

I have the honour to be.

Gentlemen,

Your most obedient humble servant,

JAMES TURLE, M.D.

LONDON,

January 15th, 1863.

THE END.

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